Amendments to the Claims

1. (currently amended) A method of analysing results from an electromagnetic survey of an area that is thought or known to contain a subterranean resistive or conductive body, comprising:

providing electric field data and magnetic field data obtained by at least one receiver from at least one horizontal electric dipole (HED) transmitter;

determining a vertical gradient in the electric field data; and

combining the vertical gradient in the electric field data with the magnetic field data to generate combined response data, wherein the combining step is executed by a computer;

wherein the resistive or conductive body is a resistive body, and wherein the resistive body is a hydrocarbon reservoir.

2. (original) A method of analysing results from an electromagnetic survey according to claim 1, wherein the electric field data include a horizontal component of electric field resolved along a first direction and the magnetic field data include a horizontal component of magnetic field data resolved along a second direction, the first and second directions being different.

3. (original) A method of analysing results from an electromagnetic survey according to claim 2, wherein the first and second directions are orthogonal to one another.

4. (previously presented) A method of analysing results from an electromagnetic survey according to claim 2, wherein the first direction is parallel to a line connecting the HED transmitter to the receiver.

5. (previously presented) A method of analysing results from an electromagnetic survey according to claim 2, wherein the first direction is perpendicular to a line connecting the HED transmitter to the receiver.

6. (previously presented) A method of analysing results from an electromagnetic survey according to claim 1, wherein the vertical gradient in the electric field data is determined by comparing electric field data detected at different heights.

7. (previously presented) A method of analysing results from an electromagnetic survey according to claim 1, wherein the vertical gradient in the electric field data is determined by comparing the electric field data and data simulated using a background model.

8. (original) A method of analysing results from an electromagnetic survey according to claim 7, wherein the data simulated using a background model provide a boundary condition for the electric field data.

9. (previously presented) A method of analysing results from an electromagnetic survey according to claim 1, wherein the vertical gradient in the electric field data at a first receiver is determined by comparing electric field data from the first receiver when the transmitter is above a second receiver with electric field data from the second receiver when the transmitter is above the first receiver, and applying a predetermined adjustment to the electric field data from second receiver.

10. (previously presented) A method of analysing results from an electromagnetic survey according to claim 1, wherein the vertical gradient in the electric field data is determined by comparing electric field data detected from a transmitter at different heights.

11. (previously presented) A method of analysing results from an electromagnetic survey according to claim 1, further comprising:

providing background data specific to the area being surveyed; and

comparing the combined response data with the background data to obtain difference data sensitive to the presence of a subterranean resistive or conductive body.

12. (original) A method of analysing results from an electromagnetic survey according to claim 11, wherein the background data are obtained by determining a vertical gradient in the magnetic field data and combining the vertical gradient in the magnetic field data with the electric field data.

13. (original) A method of analysing results from an electromagnetic survey according to claim 12, wherein the vertical gradient in the magnetic field data is determined by comparing magnetic field data detected at different heights.

14. (original) A method of analysing results from an electromagnetic survey according to claim 12, wherein the vertical gradient in the magnetic field data is determined by comparing the magnetic field data and data simulated using a background model.

15. (original) A method of analysing results from an electromagnetic survey according to claim 14, wherein the data simulated using a background model provide a boundary condition for the magnetic field data.

16. (previously presented) A method of analysing results from an electromagnetic survey according to claim 12, wherein the vertical gradient in the magnetic field data at a first receiver is determined by comparing magnetic field data from the first receiver when the transmitter is above a second receiver with magnetic field data from the second receiver when the transmitter is above the first receiver, and applying a predetermined adjustment to the magnetic field data from second receiver.

17. (previously presented) A method of analysing results from an electromagnetic survey according to claim 12, wherein the vertical gradient in the magnetic field data is determined by comparing magnetic field data detected from a transmitter at different heights.

18. (original) A method of analysing results from an electromagnetic survey according to claim 11, wherein the background data are obtained from a controlled source electromagnetic survey.

19. (original) A method of analysing results from an electromagnetic survey according to claim 11, wherein the background data are obtained from a magneto-telluric electromagnetic survey.

20. (original) A method of analysing results from an electromagnetic survey according to claim 11, wherein the background data are further combined response data obtained from another electromagnetic survey of the area performed at a different time.

21. (original) A method of analysing results from an electromagnetic survey according to claim 11, wherein the background data are calculated from a rock formation model.

22. (original) A method of analysing results from an electromagnetic survey according to claim 21, wherein the rock formation model is derived from a combination of geological data and resistivity data.

23. (original) A method of analysing results from an electromagnetic survey according to claim 22, wherein the geological data are from seismological surveying.

24. (previously presented) A method of analysing results from an electromagnetic survey according to claim 22, wherein the resistivity data are from well logging.

25. (previously presented) A method of analysing results from an electromagnetic survey according to claim 1, wherein difference data are obtained as a function of position within the area.

26. (cancelled)

27. (cancelled)

28. (previously presented) A computer program product comprising a non-transitory machine readable medium bearing machine-executable instructions for implementing a method of analysing results from an electromagnetic survey according to claim 1.

29. (previously presented) A computer apparatus loaded with machine executable instructions for implementing the method of analysing results from an electromagnetic survey according to claim 1.

30. (previously presented) A method of planning an electromagnetic survey of an area that is thought or known to contain a subterranean resistive or conductive body, comprising:

creating a model of the area to be surveyed including a rock formation containing a postulated resistive or conductive body, and a body of water above the rock formation;

setting values for water depth, depth of the postulated resistive or conductive body, and resistivity structure of the rock formation;

performing a simulation of an electromagnetic survey in the model of the survey area by calculating electric field data and magnetic field data obtained by at least one simulated receiver detecting signals from at least one simulated horizontal electric dipole (HED) transmitter;

determining a vertical gradient in the electric field data; and

combining the vertical gradient in the electric field data with the magnetic field data to generate combined response data, wherein the combining step is executed by a computer.

31. (original) A method of planning an electromagnetic survey according to claim 30, further comprising:

adjusting the model to remove the postulated resistive or conductive body; and

repeating the simulation to obtain background data for comparison with the combined response data.

32. (previously presented) A method of planning an electromagnetic survey according to claim 30, the method further comprising:

repeating the simulation for a number of transmitter-receiver horizontal separations and frequencies of transmitter signal in order to select optimum surveying conditions in terms of transmitter-receiver horizontal separations and frequencies for probing the resistive or conductive body.

33. (previously presented) A method of planning an electromagnetic survey according to claim 30, wherein the resistive or conductive body is a resistive body.

34. (original) A method of planning an electromagnetic survey according to claim 33, wherein the resistive body is a hydrocarbon reservoir.

35. (previously presented) A computer program product comprising a non-transitory machine readable medium bearing machine-executable instructions for implementing the method of planning an electromagnetic survey according to claim 30.

36. (previously presented) A computer apparatus loaded with machine executable instructions for implementing the method of planning an electromagnetic survey according to claim 30.

37-50. (cancelled)

51. (previously presented) A method for obtaining hydrocarbon from an area that contains a subterranean hydrocarbon reservoir, comprising:

providing electric field data and magnetic field data obtained by at least one receiver from at least one horizontal electric dipole (HED) transmitter during an electromagnetic survey of the area;

determining a vertical gradient in the electric field data;

combining the vertical gradient in the electric field data with the magnetic field data to generate combined response data;

identifying the subterranean hydrocarbon reservoir using the combined response data;

penetrating the subterranean hydrocarbon reservoir with a hydrocarbon-producing well; and

extracting hydrocarbon from the subterranean hydrocarbon reservoir using the hydrocarbon-producing well.

52-54. (cancelled)

55. (previously presented) A method for obtaining hydrocarbon from an area that contains a subterranean hydrocarbon reservoir, comprising:

extracting hydrocarbon from the subterranean hydrocarbon reservoir, the subterranean hydrocarbon reservoir having been determined to contain hydrocarbon by means of an electromagnetic survey method comprising the steps of:

providing electric field data and magnetic field data obtained by at least one receiver from at least one horizontal electric dipole (HED) transmitter during an electromagnetic survey of the area;

determining a vertical gradient in the electric field data;

combining the vertical gradient in the electric field data with the magnetic field data to generate combined response data; and

identifying the subterranean hydrocarbon reservoir using the combined response data.

56. (previously presented) A method according to claim 55, wherein the extracting step includes penetrating the subterranean hydrocarbon reservoir with a hydrocarbon-producing well.